

Mr. Leroy T. Harrell  
Essex Group, Inc.  
190 East Polk Street  
Orleans, Indiana 47452

Re: 117-11349-00013  
Second Administrative Amendment to  
Part 70 117-6923-00013

Dear Mr. Harrell:

Essex Groups, Inc. was issued a permit on February 9, 1999 for a PVC primary wire, thermoset primary wire, ignition wire, battery cable and machine tool wire manufacturing facility. A letter requesting the addition of an insignificant emission unit was received on September 17, 1999. A letter requesting a change in the facility description for the PVC Extrusion Department and the Continuous Vulcanization Extrusion Department and that these two operations be moved from the significant activities list in Section A.2 to the Insignificant Activities list in Section A.3 was also received on September 17, 1999. Pursuant to the provisions of 2-7-11 the permit is hereby administratively amended as follows:

The facility descriptions in Section A.2 and Section A.3 are revised as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]  
326 IAC 2-7-5(15)]

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This stationary source consists of the following emission units and pollution control devices:

- (1) One (1) automotive ignition wire auxiliary department consisting of two (2) process lines. Process line one, identified as aux 1, manufactures wire wound ignition core with a maximum production rate of 300 feet per minute. Process line two, identified as aux 2, manufactures glass core ignition wire with a maximum production rate of 300 feet per minute. Emissions from Aux 1 are exhausted through vents number ST1 through ST6. Emissions from Aux 2 are exhausted through stack GS/OV.
- (2) ~~One (1) continuous vulcanization extrusion department consisting of 7 individual process lines, identified as emission units CV 1 through CV 7. Lines CV1, CV3, CV4, CV5, CV6 and CV7 have a maximum material usage of 1,743 pounds per hour each. Line CV2 has a maximum material usage of 2,650 pounds per hour.~~
- (3) ~~One (1) PVC extrusion department consisting of 8 individual process lines, identified as emission units PVC 1 through PVC 8. Each line has a maximum material usage of 987 pounds per hour. Emissions are controlled by an air filtering system which contains both particulate and activated carbon filters with an overall control efficiency of 66%. Emissions are vented inside the building.~~
- (4)(2) One (1) natural gas fired boiler rated at 21.2 MMBtu per hour of heat input, identified as emission unit CB 1 and one (1) natural gas fired boiler rated at 10 MMBtu per hour of heat input, identified as emission unit Clay-S.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]  
[326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined by 326 IAC 2-7-1(21):

- (a) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment.
- (b) **One (1) continuous vulcanization extrusion department consisting of 7 individual process lines, identified as emission units CV 1 through CV 8. Lines CV1, CV3, CV4, CV5, CV6, CV7, and CV8 have a maximum material usage of 159.82 pounds per hour each. Line CV2 has a maximum material usage of 273.97 pounds per hour.**
- (c) **One (1) PVC extrusion department consisting of 8 individual process lines, identified as emission units PVC 1 through PVC 8. Each line has a maximum material usage of 14.27 pounds per hour. Emissions are controlled by an air filtering system which contains both particulate and activated carbon filters with an overall control efficiency of 66%.**

The facility description in Section D.2 is revised as follows:

One (1) continuous vulcanization extrusion department consisting of 7 individual process lines, identified as emission units CV 1 through CV ~~7~~**8**. Lines CV1, CV3, CV4, CV5, CV6, ~~and CV7, and CV8~~ have a maximum material usage of ~~1,743~~ **159.82** pounds per hour each. Line CV2 has a maximum material usage of ~~2,650~~ **273.97** pounds per hour.

The facility description in Section D.3 is revised as follows:

One (1) PVC extrusion department consisting of 8 individual process lines, identified as emission units PVC 1 through PVC 8. Each line has a maximum material usage of ~~987~~ **14.27** pounds per hour. Emissions are controlled by an air filtering system which contains both particulate and activated carbon filters with an overall control efficiency of 66%. Emissions are vented inside the building.

The Particulate Matter Emission Limit in Section D.2.1 is revised as follows:

D.2.1 Particulate Matter (PM) [326 IAC 6-3]

- (a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion lines 1, 3, 4, 5, 6, ~~and 7, and 8~~ shall not exceed ~~3.7~~ **0.75** pounds per hour each when operating at a process weight rate of ~~1743.33~~ **159.82** pounds per hour.
- (b) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion line number 2, shall not exceed ~~4.9~~ **1.09** pounds per hour when operating at a process weight rate of ~~2650.08~~ **273.97** pounds per hour.

The pounds per hour limitations were calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where

E = rate of emission in pounds per hour; and  
P = process weight rate in tons per hour

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this amendment and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Rachel Meredith, at (800) 451-6027, press 0 and ask for Rachel Meredith or extension 3-5691, or dial (317) 233-5691.

Sincerely,

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Management

RLM

cc: File - Orange County  
U.S. EPA, Region V  
Orange County Health Department  
Southwest Regional Office  
Air Compliance Section Inspector - Gene Kelso  
Compliance Data Section - Karen Nowak  
Administrative and Development - Janet Mobley  
Technical Support and Modeling - Michele Boner

# **PART 70 OPERATING PERMIT OFFICE OF AIR MANAGEMENT**

**Essex Group, Inc.  
190 East Polk Street  
Orleans, Indiana 47452**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 and 326 IAC 2-1-3.2 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T117-6923-00013	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Management	Issuance Date: February 9, 1999

First Administrative Amendment 117-11109	Pages Affected 5 and 30
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date: July 22, 1999

Essex Group, Inc.  
Orleans, Indiana  
Permit Reviewer: Karen Purtell

Second Administrative Amendment No. 117-11349-00013  
Amendment Reviewer: Rachel Meredith

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OP No. T117-6923-00013

Second Administrative Amendment 117-11349		Pages Affected 1a, 5, 6, 28 and 29	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management		Issuance Date: October 28, 1999	

## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

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The Permittee owns and manufactures PVC primary wire, thermoset primary wire, ignition wire, battery cable and machine tool wire.

Responsible Official: Tom Harrell  
Source Address: 190 East Polk Street, P.O. Box 127, Orleans, Indiana 47452  
Mailing Address: 190 East Polk Street, P.O. Box 127, Orleans, Indiana 47452  
SIC Code: 3357  
County Location: Orange  
County Status: Attainment for all criteria pollutants  
Source Status: Part 70 Permit Program  
Minor Source, under PSD  
Major Source, Section 112 of the Clean Air Act

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

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This stationary source consists of the following emission units and pollution control devices:

- (1) One (1) automotive ignition wire auxiliary department consisting of two (2) process lines. Process line one, identified as aux 1, manufactures wire wound ignition core with a maximum production rate of 300 feet per minute. Process line two, identified as aux 2, manufactures glass core ignition wire with a maximum production rate of 300 feet per minute. Emissions from Aux 1 are exhausted through vents number ST1 through ST6. Emissions from Aux 2 are exhausted through stack GS/OV.
- (2) One (1) natural gas fired boiler rated at 21.2 MMBtu per hour of heat input, identified as emission unit CB 1.

### A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

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This stationary source also includes the following insignificant activities which are specifically regulated, as defined by 326 IAC 2-7-1(21):

- (a) The following equipment related to manufacturing activities not resulting in the emission of HAPs; brazing equipment, cutting torches, soldering equipment, welding equipment.
- (b) One (1) continuous vulcanization extrusion department consisting of 7 individual process lines, identified as emission units CV 1 through CV 7. Lines CV1, CV3, CV4, CV5, CV6,

CV7, and CV8 have a maximum material usage of 159.82 pounds per hour each. Line CV2 has a maximum material usage of 273.97 pounds per hour.

- (c) One (1) PVC extrusion department consisting of 8 individual process lines, identified as emission units PVC 1 through PVC 8. Each line has a maximum material usage of 14.27 pounds per hour. Emissions are controlled by an air filtering system which contains both particulate and activated carbon filters with an overall control efficiency of 66%. Emissions are vented inside the building.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## SECTION D.2

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-7-5(15)]

One (1) continuous vulcanization extrusion department consisting of 7 individual process lines, identified as emission units CV 1 through CV 8. Lines CV1, CV3, CV4, CV5, CV6, CV7, and CV8 have a maximum material usage of 159.82 pounds per hour each. Line CV2 has a maximum material usage of 273.97 pounds per hour.

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

#### D.2.1 Particulate Matter (PM) [326 IAC 6-3]

- (a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion lines 1, 3, 4, 5, 6, 7, and 8 shall not exceed 0.75 pounds per hour each when operating at a process weight rate of 159.82 pounds per hour.
- (b) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion line number 2, shall not exceed 1.09 pounds per hour when operating at a process weight rate of 273.97 pounds per hour.

The pounds per hour limitations were calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and  
P = process weight rate in tons per hour

#### D.2.2 Volatile Organic Compound (VOC)

Any change or modification which may increase potential emissions from the continuous vulcanization extrusion department shall require prior approval from the OAM to determine applicability requirements of 326 IAC 8, before such change may occur.

#### D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

### Compliance Determination Requirements

#### D.2.4 Testing Requirements [326 IAC 2-7-6(1),(6)]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.2.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.



## SECTION D.3

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-7-5(15)]

One (1) PVC extrusion department consisting of 8 individual process lines, identified as emission units PVC 1 through PVC 8. Each line has a maximum material usage of 14.27 pounds per hour. Emissions are controlled by an air filtering system which contains both particulate and activated carbon filters with an overall control efficiency of 66%. Emissions are vented inside the building.

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

#### D.3.1 Volatile Organic Compound (VOC)

Any change or modification which may increase potential emissions from the PVC extrusion department shall require prior approval from the OAM to determine applicability requirements of 326 IAC 8, before such change may occur.

#### D.3.2 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2(c), the PM from the PVC extrusion department shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and  
P = process weight rate in tons per hour

#### D.3.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility.

### Compliance Determination Requirements

#### D.3.4 Testing Requirements [326 IAC 2-7-6(1),(6)]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.3.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

## **Indiana Department of Environmental Management Office of Air Management**

### **Technical Support Document (TSD) for an Administrative Amendment to a Part 70 Operating Permit**

#### **Source Background and Description**

<b>Source Name:</b>	<b>Essex Group</b>
<b>Source Location:</b>	<b>190 East Polk Street, P.O. Box 127, Orleans, Indiana 47452</b>
<b>County:</b>	<b>Orange</b>
<b>SIC Code:</b>	<b>3357</b>
<b>Operation Permit No.:</b>	<b>T117-6923-00013</b>
<b>Amendment No.:</b>	<b>117-11349-00013</b>
<b>Amendment Reviewer:</b>	<b>Rachel Meredith</b>

The Office of Air Management (OAM) has reviewed a request for an amendment to Part 70 Permit No. T117-6923-00013, received from Essex Group, Inc. relating to the following emission units.

- (a) the redesignation of the PVC extrusion lines in the PVC Extrusion Department from significant emission units to insignificant emission units based on the correction of the maximum material usage from 8,646,273 pounds per year to 1,250,000 pounds per year for each of the eight (8) PVC extrusion lines.
- (b) the redesignation of the continuous vulcanization lines in the Continuous Vulcanization Department from significant emission units to insignificant emission units based on the correction of the maximum material usage from 15,271,584 pounds per year to 1,400,000 pounds per year for continuous vulcanization lines 1, 3-7, and from 23,214,760 pounds per year to 2,400,000 pounds per year for continuous vulcanization line 2.
- (c) the addition of a new line in the Continuous Vulcanization Department with a maximum material usage of 159.82 pounds per hour.

#### **History**

On September 17, 1999, the Essex Group, Inc. submitted a request for the addition of an insignificant emission unit to the continuous vulcanization extrusion department, and a request that certain emission units listed as significant in the PVC Extrusion Department and the Continuous Vulcanization Department be moved to the insignificant list based on a correction in the maximum material usage for each line in these facilities. Calculation of the potential to emit PM and VOC from the PVC Extrusion Department and the Continuous Vulcanization Department in the original Part 70 Permit issued on February 9, 1999 was based on the total weight of the finished product from each line instead of the maximum coating material usage. Recalculation based on maximum coating material usage results in a reduced potential to emit from the PVC and Continuous Vulcanization departments to a level making these units insignificant activities pursuant to 326 IAC 2-7-1(21).

### **Existing Approvals**

This source was issued a Part 70 Operating Permit on February 9, 1999. One Administrative Amendment, AA 117-11109, has been issued for this Part 70 Permit since the date of permit issuance adding a previously permitted 10 MMBtu natural gas fired boiler to the permit which had been omitted from the original permit.

### **Unpermitted Emission Units and Pollution Control Equipment**

There are no unpermitted facilities operating at this source during this review process.

### **New Emission Units and Pollution Control Equipment Requiring ENSR**

There are no new facilities to be reviewed under the ENSR process.

### **Enforcement Issue**

There are no enforcement actions pending.

### **Recommendation**

The staff recommends to the Commissioner that the Administrative Amendment to the Part 70 permit be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on September 17, 1999.

### **Emission Calculations**

See Appendix A of this document for detailed emissions calculations.

### **Potential To Emit**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

The following Table represents the revised PTE for the PVC Extrusion Department and the Continuous Vulcanization Extrusion Department based on the maximum material usage of 1,250,000 pounds per year for each of the eight (8) PVC extrusion lines in the PVC Extrusion Department and 1,400,000 pounds per year for lines CV1 and CV3-CV7, 2,400,000 pounds per year for line CV2, and 1,400,000 pounds per year for the new line CV8 in the Continuous Vulcanization Extrusion Department.

Pollutant	Potential To Emit (tons/year)
PM-10	0.38
SO <sub>2</sub>	0
VOC	0.96
CO	0
NO <sub>x</sub>	0

HAP's	Potential Emissions (tons/year)
Toluene	less than 1
MIBK	less than 1
Xylene	less than 1
TCE	less than 1
TOTAL	less than 2.5

### Justification for Modification

The Part 70 Permit is being modified through an Administrative Amendment pursuant to 326 IAC 2-7-11(a)(8). This amendment changes the facility description for the PVC Department and the Continuous Vulcanization Department and does not increase the potential to emit of any regulated pollutant greater than the thresholds under 326 IAC 2-1.1-3(d)(1). The new line (CV8) in the Continuous Vulcanization Extrusion Department is also being added to the Part 70 Permit pursuant to 326 IAC 2-7-8-1(a)(8). The potential emissions for the new line are below the threshold under 326 IAC 2-1.1-3(d)(1) making the new line exempt from source modification requirements under 326 IAC 2-7-10.5. Therefore, the line is being added to the Part 70 Permit as a change in the facility description for the Continuous Vulcanization Extrusion Department.

### County Attainment Status

The source is located in Orange County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Orange County has been designated as attainment or unclassifiable for ozone.

### Federal Rule Applicability

There is no change in Federal Rule Applicability with the issuance of this Administrative

Amendment.

### State Rule Applicability

There is no new State Rule Applicability with the issuance of this Administrative Amendment. The Particulate Matter emission limit for the Continuous Vulcanization Department (Section D.2.1) was revised based on the recalculated process weight rate for this department.

#### 326 IAC 6-3 Particulate Matter (PM)

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion lines 1, 3, 4, 5, 6, 7, and 8 shall not exceed 0.75 pounds per hour each when operating at a process weight rate of 159.82 pounds per hour.

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the continuous vulcanization extrusion line number 2, shall not exceed 1.09 pounds per hour when operating at a process weight rate of 273.97 pounds per hour.

The pounds per hour limitations were calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

### Compliance Requirements

There is no change in Compliance Requirements with the issuance of this Administrative Amendment.

### Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Part 70 Application Form GSD-08.

This source will emit levels of air toxics greater than those that constitute major source applicability according to Section 112 of the 1990 Clean Air Act Amendments.

### Conclusion

The operation of this wire manufacturing process shall be subject to the conditions of the attached proposed **Second Administrative Amendment No. 117-11349-00013**.

Essex Group  
Orleans, Indiana  
Permit Reviewer: Karen Purtell

Second Administrative Amendment No. 117-11349-00013  
Amendment Reviewer: Rachel Meredith

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**Revised Calculations (Based on Amendment)**

PVC Extrusion Department - consisting of 8 lines

***VOC Potential Emissions:***

Maximum throughput = 1,400,000 lb/yr = 14.27 lb/hr per line

$14.27 \text{ lb/hr} * \text{ton}/2000 \text{ lb} * 33.4 \text{ Fg/g} * \text{g}/1 \times 10^6 * 8760 \text{ hr/yr} = 0.021 \text{ ton/yr per line}$

Total VOC for PVC Extrusion Department ( $0.021 \times 8$ ) = .16644 tons/yr

Continuous Vulcanization Extrusion Department

***VOC Potential Emissions:***

Maximum throughput for lines 1, 3, 4, 5, 6, 7, and 8 = 1,400,000 lb/yr = 159.82 lb/hr each line

$1,400,000 \text{ lb/yr} * 130 \text{ lb/MMlb} = 182 \text{ lb/yr} = 0.091 \text{ tons/yr each line}$

Total VOC for Continuous Vulcanization Extrusion Department lines 1, 3-8 ( $0.091 \times 7$ ) = 0.637 tons/yr

***PM Potential emissions: 326 IAC 6-3***

$$E = 4.1 P^{0.67}$$

$$P = 159.82 \text{ lb/hr} = 0.08 \text{ ton/hr}$$

$$E = 4.1 (0.08)^{0.67} = 0.75 \text{ lb/hr} = 3.2 \text{ ton/yr}$$

Uncontrolled PM emissions =  $1,400,000 \text{ lb/yr} * 62 \text{ lb/MMlb} = 86.8 \text{ lb/yr} = 0.0434 \text{ tons/yr}$

Total PM for Continuous Vulcanization Extrusion Department lines 1, 3-8 ( $0.0434 \times 7$ ) = 0.3038 tons/yr

***VOC Potential Emissions:***

Maximum throughput for line 2 = 2,400,000 lb/yr = 273.97 lb/hr

$2,400,000 \text{ lb/yr} * 130 \text{ lb/MMlb} = 312 \text{ lb/yr} = 0.156 \text{ tons/yr}$

***PM Potential emissions: 326 IAC 6-3***

$$E = 4.1 P^{0.67}$$

$$P = 273.97 \text{ lb/hr} = 0.137 \text{ ton/hr}$$

$$E = 4.1 (0.137)^{0.67} = 1.09 \text{ lb/hr} = 4.87 \text{ ton/yr}$$

Uncontrolled PM emissions = 2,400,000 lb/yr \* 62 lb/MMlb = 148.8 lb/yr = 0.0744 tons/yr

Essex Group  
Orleans, Indiana  
Permit Reviewer: Karen Purtell

Second Administrative Amendment No. 117-11349-00013  
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### **Calculations from Original Permit**

PVC Extrusion Department consisting of 8 lines

#### ***VOC Potential Emissions:***

Maximum throughput = 8,646,273 lb/yr = 987.02 lb/hr per line

$987.02 \text{ lb/hr} * \text{ton}/2000 \text{ lb} * 33.4 \text{ Fg/g} * \text{g}/1 \times 10^6 * 8760 \text{ hr/yr} = 0.144 \text{ ton/yr per line}$

Total VOC for PVC Extrusion Department (0.144 x 8) = 1.152 tons/yr

Continuous Vulcanization Extrusion Department

#### ***VOC Potential Emissions:***

Maximum throughput for lines 1, 3, 4, 5, 6, and 7 = 15,271,584 lb/yr = 1743.33 lb/hr each line

$15,271,584 \text{ lb/yr} * 130 \text{ lb/MMlb} = 1985 \text{ lb/yr} = 0.99 \text{ tons/yr each line}$

Total VOC for Continuous Vulcanization Extrusion Department lines 1, 3-7 (0.99 x 6) = 5.94 tons/yr

#### ***PM Potential emissions: 326 IAC 6-3***

$E = 4.1 P^{0.67}$

$P = 1743.33 \text{ lb/hr} = 0.87 \text{ ton/hr}$

$E = 4.1 (0.87)^{0.67} = 3.73 \text{ lb/hr} = 16.33 \text{ ton/yr}$

Uncontrolled PM emissions = 15,271,584 lb/yr \* 62 lb/MMlb = 946.8 lb/yr = 0.47 tons/yr

Total PM for Continuous Vulcanization Extrusion Department lines 1, 3-7 (0.47 x 6) = 2.82 tons/yr

#### ***VOC Potential Emissions:***

Maximum throughput for line 2 = 23,214,760 lb/yr = 2650.08 lb/hr

$23,214,760 \text{ lb/yr} * 130 \text{ lb/MMlb} = 3017.92 \text{ lb/yr} = 1.5 \text{ tons/yr}$

#### ***PM Potential emissions: 326 IAC 6-3***

$E = 4.1 P^{0.67}$

$P = 2650.08 \text{ lb/hr} = 1.32 \text{ ton/hr}$



$$E = 4.1 (1.32)^{0.67} = 4.9 \text{ lb/hr} = 21.46 \text{ ton/yr}$$

$$\text{Uncontrolled PM emissions} = 23,214,760 \text{ lb/yr} * 62 \text{ lb/MMlb} = 1439.32 \text{ lb/yr} = 0.72 \text{ tons/yr}$$

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<b>Total PTE (PVC &amp; CVE Departments)</b>	<b>Original Permit (tons/yr)</b>	<b>With Amendment (tons/yr)</b>
VOC	8.592	0.95944
PM	3.54	0.3782